(No Model.)

T. REMUS.

MANUFACTURE OF PASTEBOARD ARTICLES.

No. 456,597. Patented July 28, 1891.

Fig:1

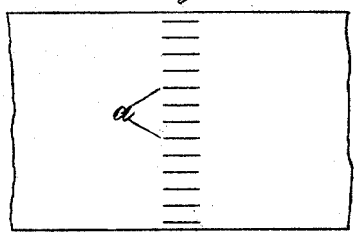


Fig:3

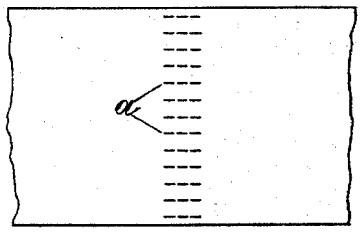


Fig:2

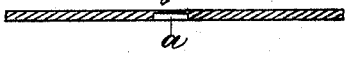


Fig:4

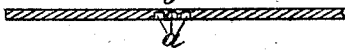


Fig:5

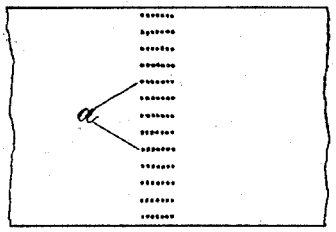
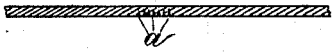


Fig:6



Witnesses:
Carleton E. Snell.
Edith H. Browne

Inventor
Teodor Remus
by Wilkinson & Browne
his attorneys

UNITED STATES PATENT OFFICE.

TEODOR REMUS, OF DRESDEN, GERMANY.

MANUFACTURE OF PASTEBOARD ARTICLES.

SPECIFICATION forming part of Letters Patent No. 456,597, dated July 28, 1891.

Application filed January 27, 1891. Serial No. 379,326. (No model.)

To all whom it may concern:

Be it known that I, TEODOR REMUS, a subject of the Emperor of Germany, residing at Dresden, in the Empire of Germany, have invented certain new and useful Improvements in the Manufacture of Pasteboard Articles, of which the following is a specification.

The present invention relates to a new process for preparing pasteboard at the places where it is required to be bent in such a manner that the bending shall not cause any injury to the outer surface of the pasteboard; and the invention consists in the said process.

The improved process is particularly applicable in cases where the bending is such as to produce not a sharp but a rounded corner, and in the manipulation of pasteboard whose surface forming the exterior of the finished article is, by reason of its color, for example, of such a nature as to be especially sensitive to injury.

The process is as follows: On the inner side of the pasteboard, at right angles to the corner or line of bending, there are formed cuts or incisions *a* at equal distances apart and to a depth of about three-quarters of the thickness of the pasteboard. These cuts are either continuous, as represented in Figures 1 and 2 of the annexed drawings, or form interrupted lines, as in Figs. 3 and 4; or, again, as represented in Figs. 5 and 6, they may consist of rows of pricks or punctures. That part of the thickness of the pasteboard affected by these cuts is thus divided into longitudinal strips. In these strips, on the other hand, a displacement of the particles in consequence of the compressing or crowding action takes place, and consequently a loosening of the connection between them occurs. These two results combine to produce a weakening of the resistance which these parts or layers oppose to the bending and to the crushing action resulting from such bending, while the uncut parts retain their power of resistance. The cuts *a* also have the effect of producing a displacement of the neutral plane toward the uncut outer side, so that this plane coincides, or nearly so, with the base or bottom of the cuts *a*. In consequence of this the pasteboard material on the outer side is subjected to so much less stretching or straining that it is not liable to be torn or cracked by the bending, while the inner parts or layers subjected to compression in the bending process offer a moderate resistance only, for the reasons above set forth.

In working with certain kinds of pasteboards—such, for example, as those with a very intimate combination of the fibers—the process consists, in addition to the treatment above described, in wetting the parts in the vicinity of the cuts *a* with a cementing liquid, this being performed simultaneously with the production of the said cuts. By the action of the liquid the displacement of the particles which occurs in the crushing action and the crowding action itself is facilitated, while the cementing matter remaining after the liquid has evaporated not only restores the loosened connection between the fibers and the original solidity or firmness of the pasteboard, but also imparts greater stiffness to the bent part.

Having fully described my invention, what I claim is—

1. In the manufacture of pasteboard articles, a process for the preparation of the part to be subjected to bending, consisting in making cuts or incisions *a* at right angles to the line of bending and moistening with a cementing liquid the inner side of the pasteboard in the vicinity of the cuts *a*, substantially as set forth.

2. The process of preparing pasteboard to facilitate the bending of the same, which consists in making parallel cuts or incisions in the pasteboard at the plane where the bending is to be effected, said cuts or incisions extending longitudinally of the pasteboard and at right angles to the line of bending, and said cuts or incisions extending only partly through the pasteboard, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

TEODOR REMUS.

Witnesses:

PAUL DRUCKMÜLLER,

FRITZ DIETRICK.